CLAIMS:

1. A method for performing passive voltage contrast on a silicon on insulator (SOI) device comprising the steps of:

grinding a first portion of a substrate of said SOI device with a dimpling tool;

etching a second portion of said substrate of said SOI device with tetramethylammonium hydroxide (TMAH) following said grinding of said SOI device with said dimpling tool;

etching a third portion of said substrate and a portion of a box insulator of said SOI device with hydrofluoric acid (HF) following said etching of said SOI device with said TMAH;

applying a conductive coating to said etched portions of said substrate and said box insulator of said SOI device;

applying said conductive coating to a portion of a body of said SOI device; and

directing a beam of electrons at said SOI device to detect a secondary emission from said SOI device.

2. The method as recited in claim 1, wherein said beam of electrons is directed at a gate oxide area on said SOI device.

3. The method as recited in claim 2, wherein if said secondary emission results in said gate oxide area appearing bright then a breakdown in said gate oxide of said SOI device is indicated.

4. The method as recited in claim 2, wherein if said secondary emission results in said gate oxide area appearing dark then a breakdown in said gate oxide of said SOI device is not indicated.

5. The method as recited in claim 1, wherein said etching of said SOI device with said HF stops at a body of said SOI device.

6. The method as recited in claim 1 further comprising the step of:

polishing said SOI device to a first metal layer.

7. The method as recited in claim 6 further comprising the step of:

gluing a dummy integrated circuit to a top surface of said SOI device.

8. The method as recited in claim 7 further comprising the step of:

removing said dummy integrated circuit following etching said SOI device with said HF.

9. The method as recited in claim 1, wherein said conductive coating comprises a carbon ink coating.

10. A silicon on insulator (SOI) device, comprising:

a substrate, wherein a first portion of said substrate is ground using a dimpling tool, wherein a second portion of said substrate is etched using tetramethylammonium hydroxide (TMAH), wherein a third portion of said substrate is etched using hydrofluoric (HF) acid;

a box insulator overlaying said substrate, wherein a portion of said box insulator is etched using said HF acid;

a body overlaying said box insulator; and

a polysilicon gate separated from said body by a gate oxide;

wherein a beam of electrons is directed at an area of said gate oxide to determine if there is a breakdown in said gate oxide.

11. The SOI device as recited in claim 10, wherein said beam of electrons is directed at said gate oxide area to detect a secondary emission from said SOI device.

12. The SOI device as recited in claim 11, wherein if said secondary emission results in said gate oxide area appearing bright then a breakdown in said gate oxide of said SOI device is detected.

13. The SOI device as recited in claim 11, wherein if said secondary emission results in said gate oxide area appearing dark then a breakdown in said gate oxide of said SOI device is not detected.

14. The SOI device as recited in claim 10, wherein said body is not etched using said HF.

15. The SOI device as recited in claim 10, wherein a conductive coating is applied to said etched portions of said substrate and said box insulator of said SOI device and applied to a portion of said body of said SOI device.

16. A silicon on insulator (SOI) device, comprising:

a substrate, wherein a first portion of said substrate is ground using a dimpling tool, wherein a second portion of said substrate is etched using tetramethylammonium hydroxide (TMAH), wherein a third portion of said substrate is etched using hydrofluoric (HF) acid;

a box insulator overlaying said substrate, wherein a portion of said box insulator is etched using said HF acid;

a body overlaying said box insulator; and

a contact interconnecting said body to a metal layer;

wherein a beam of electrons is directed at an area of said contact to determine if said contact is open.

17. The SOI device as recited in claim 16, wherein said beam of electrons is directed at said contact area to detect a secondary emission from said SOI device.

18. The SOI device as recited in claim 17, wherein if said secondary emission results in said contact area appearing bright then a closed contact is detected.

19. The SOI device as recited in claim 17, wherein if said secondary emission results in said contact area appearing dark then an open contact is detected.

20. The SOI device as recited in claim 16, wherein said body is not etched using said HF.

21. The SOI device as recited in claim 16, wherein a conductive coating is applied to said etched portions of said substrate and said box insulator of said SOI device and applied to a portion of said body of said SOI device.

22. A method for making a silicon on insulator (SOI) device suitable for performing passive voltage contrast comprising the steps of:

grinding a first portion of a substrate of said SOI device with a dimpling tool;

etching a second portion of said substrate of said SOI device with tetramethylammonium hydroxide (TMAH) following said grinding of said SOI device with said dimpling tool;

etching a third portion of said substrate and a portion of a box insulator of said SOI device with hydrofluoric acid (HF) following said etching of said SOI device with said TMAH;

applying a conductive coating to said etched portions of said substrate and said box insulator of said SOI device; and

applying said conductive coating to a portion of a body of said SOI device.